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Finding of No Significant Impact

Remediating Contamination at Lawrence Berkeley National Laboratory Regulated under the Resource Conservation and Recovery Act

AGENCY: U.S. Department of Energy (DOE)

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: The U.S. Department of Energy (DOE) has prepared the RCRA Corrective Measures Study Report (CMS) and Environmental Assessment (EA) (DOE/EA-1527) evaluating the proposed action to remediate soil and groundwater contamination at several locations within the Lawrence Berkeley National Laboratory (LBNL) that is regulated under the Resource Conservation and Recovery Act (RCRA).

Based on the information and analyses in the EA, DOE has determined that the proposed action is not a major Federal action that would significantly affect the quality of the human environment within the meaning of the National Environmental Policy Act of 1969. Therefore, the preparation of an Environmental Impact Statement (EIS) is not necessary, and DOE is issuing this FONSI.

The CMS/EA may be viewed at http://www.lbl.gov/ehs/erp/ under "documents".

For further information regarding this project, contact:

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Background and Description of the Proposed Work:

The LBNL is a multipurpose research facility operated by DOE and managed by the University of California. As a research facility, it has used many types of chemicals during its operational history. Some chemicals, primarily chlorinated degreaser compounds and polychlorinated biphenyls (PCBs), have been released to the environment. The solvent contaminants and their degradation products include tetrachloroethylene (PCE), trichloroethylene (TCE), vinyl chloride, chloroform, carbon tetrachloride, 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethylene (1,1-DCE), cis-1,2-dichloroethylene (cis-1,2-DCE), 1,1,1-trichloroethane (1,1,1-TCA), and 1,1-dichloroethane (1,1-TCA). Contamination is confined to LBNL and poses no threat to the public. Investigation and remediation of this contamination are regulated by the California Department of Toxic Substances Control (DTSC) under its RCRA authority.

The risk-based soil cleanup standards expected by the DTSC represent a non-cancer hazard index of 1.0 and incremental latent risk of contracting cancer that range from 10^{-6} up to 10^{-4}. Health risks were estimated conservatively. Each estimated dose was normalized by the appropriate reference dose to give a fraction of the dose below which no adverse health effect should occur. These risk fractions were summed over all pathways and contaminants of concern, to yield a hazard index. A hazard index smaller than 1.0 assures that no adverse health effect should occur. Where well yields exceed 200 gallons/day, Maximum Contaminant Levels (MCLs) are the groundwater cleanup standards; and the soil cleanup standards are calculated values intended to limit groundwater contamination to MCLs. Four areas of soil contamination and eleven areas of groundwater contamination are evaluated in the CMS/EA. LBNL has completed the removal of contaminated soil from two of the four soil areas as interim corrective measures that have already achieved the clean-up levels proposed in the CMS/EA. In addition, the CMS/EA concludes that four areas of groundwater contamination require no corrective action because concentrations of contaminants are below the applicable clean-up levels. The remaining two areas of soil contamination and seven areas of groundwater contamination are subject to ongoing and/or future cleanup actions.

Excavation and off-site disposal of contaminated soil is proposed for the solvent-contaminated soil beneath Building 51L and the Building 7 sump, both of which constitute sources of solvent plumes in groundwater. The primary technologies proposed for groundwater cleanup are *in situ* soil flushing and monitored natural attenuation. These technologies may be supplemented by the injection of food-grade compounds, such as polylactate ester, to enhance contaminant degradation.

Alternatives:

The CMS/EA evaluates the following technologies for their ability to control the sources of contamination and achieve the proposed cleanup standards at LBNL's contaminated sites, their long-term effectiveness, and their cost.
For soil they are:
No action
Institutional controls
Containment (capping, solidification, stabilization)
Chemical oxidation
Soil vapor extraction (SVE) or dual phase extraction (DPE)
Thermally enhanced SVE/DPE
In situ soil flushing
Soil mixing
Excavation and off-site disposal
For groundwater they are:
No action
Monitored natural attenuation
Institutional controls
Containment (slurry walls, grout curtains, sheet pile walls)
Groundwater capture (by drains, trenches, or extraction wells)
Permeable reactive barrier with funnel
Chemical oxidation
Enhanced bioremediation
Groundwater extraction/flushing
Dual-phase (groundwater and soil vapor) extraction

Based on those evaluations, only the following alternatives are recommended by the CMS/EA.

For soil:
No action
Excavation with offsite disposal
For groundwater:
No action
Monitored natural attenuation
Institutional controls
Groundwater capture
Enhanced bioremediation
Groundwater extraction/flushing
Dual-phase extraction

Environmental Impacts:

The CMS/EA analyzes the environmental impacts of the recommended alternatives for remediating RCRA contamination at LBNL. The CMS/EA considered impacts to aesthetics, air quality, biological and cultural resources, environmental justice, geology and soils, hazardous materials, hydrology and water quality, land use, noise, socioeconomics, public services, transportation and traffic, and human health. The only alternatives recommended are those that satisfy regulatory clean-up standards, and the environmental impacts of all of the recommended alternatives are small to negligible. The source of greatest impact would involve excavating 1400 cubic yards of contaminated soil and trucking the soil to a suitable disposal site. Cumulative impacts were also examined in the Initial Study prepared for this project pursuant to the California Environmental Quality Act (CEQA), and the impacts were also less than significant. This EA incorporates the Initial Study by reference. Neither the CMS/EA nor the CEQA Initial Study identifies any significant environmental impacts to be expected from the recommended remediation alternatives.

Determination:

Based on the information and analyses contained in the CMS/EA, DOE has determined that the proposed action to remediate RCRA contamination at LBNL does not constitute a major Federal action that would significantly affect the quality of the human environment within the context of the National Environmental Policy Act of 1969. Therefore, preparation of an EIS is not required.

Public Availability:

Issued in Berkeley, California, this 12th day of October, 2005.

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